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The Wilson Ornithological Chapter of the Agassiz Association.

GENERAL NOTES.

Issued Bi-Monthly as the Official Organ of the Chapter.

EDITED BY LYNDS JONES.

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OBERLIN, OHIO,
May 31, 1897.

WHERE JUNCO ROOSTS.

Answers to the question: "Where does Junco Roost?" have been received from sufficiently scattered localities to furnish a fairly reliable record of its northern and southern winter range, and its roosting habits, for the past winter.

It appears to have been absent north of 42° during the greater part of the winter, and is reported as wintering north of 41° from only scattering localities and in especially favorable places. It was not common much above 40°, except in isolated places. Last winter it ranged further north in the extreme east and in the states bordering the Mississippi River than in Ohio and adjoining regions. Mr. Widmann found it wintering in Louisiana about New Orleans. His is the only report from the far south.

Junco's roosting habits are so interesting that contributors should be allowed to speak for themselves.

Philadelphia, Pa.—Within fifty feet of the side of our house there is a small patch of evergreen trees, mostly cedars and hemlocks, and in these trees the Juncos roost in large numbers every night through the winter. —RUSSELL GRAY.

Berwyn, Pa.—I have always found the Junco—one of our most common winter visitors—in the sheltered and briery nooks of old and neglected fence rows—here commonly called the worm or Virginia fence—in very stormy days, or early morning and late evening. They will also, whenever it is possible, roost in cedar trees or bushes.—FRANK L. BURNS.

Washington, D. C—At my home, in a suburb of the city, we have many Juncos throughout the winter (from October to the end of April), and having made a practice of feeding them, together with White-throated Sparrows and other winter birds (including of course, the English Sparrow—an unwelcome guest, however), we have many opportunities for observing them. The veranda of our house extends across the west, south, and part of the east sides, and is enclosed with diagonal lattice. Through this many Juncos make their way about dusk, and roost beneath the porch floor, probably upon the sills or braces. Of course I have closed all openings through which cats might possibly gain access to them. Very often, when returning home in the evening, I have startled from their hiding place Juncos that had taken shelter beneath the board walk, over which I was passing. I have also accidentally startled them (other birds as well) from the dense foliage of small red cedar trees in my yard,

as well as from the evergreen honeysuckle hedge with which it is enclosed.—ROBERT RIDGWAY.

Oberlin, Ohio.—Junco was entirely absent from northern Ohio during the past winter except in epsecially favorable places in the river gorges, in or near towns or cities. Here it roosted in the piles of brush thrown over the ledge of rocks, or even in the bed of leaves beneath overhanging ledges of stone.—LYNDS JONES.

Montgomery, Ohio.—For the note which suggested this inquiry, contributed by Mr. J. C. Galloway, see BULLETIN No. 12, page 9.

Meridian, Wis.—The Slate-colored Junco is seldom seen here during the winter, and never when there is much snow on the ground. Were last seen December 7, 1896, and first seen this spring March 29. I have found it roosting on the ground among dry leaves and weeds; more often on steep hillsides. It often roosts about farm buildings, in the sides of hay and straw stacks, and sometimes enters open buildings and sheds in stormy weather. It leaves us the latter part of April.—J. N. CLARK.

Rockford, Ill.—The Junco usually winters here in small numbers, tho I have not observed any this year, but then, I have been out very little. When they have been noted it was around farm houses where there are conifers, which are used extensively here for protection and ornament, in which I have known them to roost.—J. E. DICKINSON.

The following contribution from Mr. Widmann gives both the range and roost in two different localities. "I found it February 26, a mile south of New Orleans, and at Madisonville it was quite common March 5. In the immediate vicinity of St. Louis it prefers the ornamental evergreens for roost, especially red cedars and Norway spruces. Where such occur, particularly young trees thickly branched to the ground, Juncos roost in large numbers. They go to roost pretty early in the evening. On the farms I have seen them enter corn-shocks and out-buildings, taking to similar places as the English Sparrow. I may also say that they return to their winter home as other birds return to their summer home. The first winter I put up the feeding box in a tree near the house, the Juncos did not enter the box before late winter, driven to it by heavy snow. The next winter they had no fear from the beginning, and it was evident from their behavior that they had been there before. Ever since then they are regular boarders, and in cold weather never tire eating nuts. It is a common winter visitor from St. Louis southward.

To prevent misunderstanding, the box entered by my Juncos is not a nesting box with a small hole, but an open box 12 by 18 inches, and 6 deep. It is nailed against the trunk of an elm tree, 12 feet from the

ground, and is distant from my window in the second story 10 feet. In this we put smashed walnuts, whenever empty, all winter, day by day. The Blue Jays get the most of them, but they fly away with the pieces, and in doing so attract the attention of other birds to this source of continual supply. Our boarders, besides Blue Jays, Juncos and English Sparrows, are European Tree Sparrow, Tufted Tit, Chickadee, White-breasted Nuthatch, Downy Woodpecker, and Hairy Woodpecker These have been visitors every year for a longer or shorter period. Red-breasted Nuthatch was a boarder from November, '95 to about Jan. 20, '96. Yellow-bellied Sapsucker is seldom seen to enter the box ; he prefers the ham-bones, hung up in the same tree. Not entering, but attracted to the tree, are Golden-crested Kinglet (once the Ruby-crested in January) Brown Creeper, Bluebird, Robin, Flicker, Bewick's Wren. Also Cardinals (male and female) are among the boarders in cold weather, and White-throated Sparrows in late snows in March. Snow, of course, brings the greatest number, and on some days the tree looks enchanted ; birds of all feathers, waiting their turn.

OTTO WIDMANN, *Old Orchard, Mo.*

NOTES ON THE BIRDS OF OKANOGAN COUNTY, WASH.

Since the appearance of other notes under this title in the September and November BULLETINS, I prepared a brief, annotated list of the birds of this region, which appeared in the *Auk*, April, 1897, and was also issued as *Laboratory Bulletin*, No. 6, Oberlin College. Reference to this will make unnecessary in the present connection a review of the commoner species and leave me to speak at random concerning a few of the rarer sparrows and more noticeable warblers.

HEPBURN'S LEUCOSTICTE, *Leucosticte tephrocotis littoralis.*—The breeding of this rare species was conjectural until I was so fortunate as to encounter it on Wright's Peak during the summer of '96. We had been encamped from August 5th to 8th on a shoulder of the mountain, at an altitude of 8,000 feet, and I had caught several unsatisfactory glimpses of this glacier-sprite, but it was not until early morning of the last day, when we succumbed to the continual cold weather and retreated from the mountains, that I saw the birds well. A pair were feeding full-grown young, and as the restless youngsters flitted from pile to pile of the projecting morainic knobs along the foot of the glacier, I could not but

note how perfectly at home these fledgling ice-birds seemed. The wind was blowing piercing cold and a mountain storm was brewing, but their rich brown coats and rosy trimmings told of anything but discomfort and fear. The parent birds appeared to forage at somewhat lower levels for food, inasmuch as they repeatedly plunged over the mountain rim, and were lost to sight in the depths below.

BAIRD'S SPARROW, *Ammodramus bairdii*.—On September 5th, 1895, I found several of these birds on a piece of weedy bottom land where they seemed to be feeding on a little wild bean. Like many of their kin they kept close to the ground and flushed suddenly on a near approach, only to plump down again at no great distance. I noted them as abundant in this same situation on the 9th of September, and they may have lingered until the little beans were all gleaned from the ground.

Their spring passage the following year was more rapid. On the 29th of April, about a dozen were seen in an upland pasture mixing freely with *Zonotrichia leucophrys intermedia*. Only one individual was noted in the old haunt by the lake shore.

BREWER'S SPARROW, *Spizella breweri*.—As I stepped forth from my little enclosure on the edge of the Chelan townsite and before I had set my ears to test the quality of sounds, I became aware of a "chirring" from the sagebrush to westward, of different proportions from the customary trills of the Chipping Sparrows, so common there. Returning for my glass, after careful skulking I crept close up on the little vocalist. His strain was first a short *chir-r-r* of notes so rapid that it was impossible for the ear to individualize them, and then a trill which, if heard separately, would not attract attention in a chorus of Chipping Sparrows. When carefully discriminated, however, one noticed the lighter, less emphatic character. The bird kept low in the sage bushes and was with difficulty secured. Nature could hardly have designed a plainer and more inconspicuous nondescript if she had lain awake all night.

AUDUBON'S WARBLER, *Dendroica auduboni*.—The commonest of the Warblers in Okanogan county, although not found in the sage brush sections or wider valleys. This bird is a good mountaineer, and although I saw it in June on the lake shore, where it was probably breeding at an altitude of less than 1,000 feet, it was noted in August at all levels up to the glacier realm of 8,000 feet. It is undoubtedly the hardiest bird of its genus.

MCGILLIVRAY'S WARBLER, *Geothlypis macgillivrayi*.—A not uncommon resident in the underbrush of hillside springs and draws. One song heard reminded me strongly of that of a Dickcissel, though of course

lighter and much less penetrating, *sheep, sheep, sheep, shear, shear sheep ;* or *sheep, sheep, sheep, sheep, shear, sheep.* Another song heard in Yakima county was much more varied and bright. A nest found in the latter place was barely lifted clear of the ground by the overhanging branches of a rose bush.

PILEOLATED WARBLER, *Sylvania pusilla pileolata.*—Although a number of birds were seen it was almost impossible to route them out of their favorite tangles long enough for inspection. I introduce them in this connection solely to describe the song which I heard repeatedly, but especially at Snoqualmie Falls on the west side of the mountains. It consisted of a single syllable repeated in a lively crescendo "chip, *chip,* CHIP, CHIP, *CHIP.*" I could not but contrast it with the song of *S. pusilla* heard this spring. The latter was a more varied strain of lighter and less emphatic character, *chee, chipitititity, chee, chee.* This is of course quite unpronounceable at first, but conveys the idea to the eye.

WILLIAM L. DAWSON, *Oberlin, Ohio.*

GENERAL NOTES.

NESTING OF THE ROBIN, *Merula migratoria.*—On April 24, I found a nest in a wild cherry, about eight feet up and directly over about six feet of water. The robin flew off at my approach, and on climbing to the nest I found it contained one egg. The next day, April 25, being Sunday, I did not visit the nest, but on April 26, the nest contained three eggs. I supposed that the set would be completed on the next day, but the fourth egg was not laid until noon of the 28th, leaving a day and a half between the laying of the third and fourth egg. Incubation was apparently begun with the laying of the third egg, as I passed the nest several times each day and the female was always on the nest. I had intended to take notes on the incubation, but on April 30 no trace of the nest could be found, probably having been taken by some boys.

About April 28, a pair of Robins began a nest in a large pine back of our place, but they were driven away by a pair of Mourning Doves (*Zenaidura macroura*) before the first egg was laid. This is the first time I have ever seen the Mourning Doves interfere with any other birds, although they are very common here now.

RUSSELL GRAY, *Philadelphia, Pa.*

NOTES ON SOME WINTER BIRDS OF MERIDIAN, DUNN CO., WIS.—

Snowy Owls were quite abundant during November and December, 1895, and four were taken in a steel trap set on the top of a long pole in an open field. Goshawks were also unusually abundant during the winter, and what is more unusual, were nearly all in adult plumage, and mostly males. Of twenty-one captured, nineteen were in adult plumage, and eighteen were males. We usually have the young birds in far greater numbers than the adult. Pine and Evening Grosbeak were present but not in great numbers. Lesser Redpolls and Snowflakes were also represented in small numbers. J. N. CLARK, *Meridian, Wis.*

PINE SISKIN, *Spinus pinus.*—Further notes upon the unprecedented southward movement of this species have been received; this time from the extreme south. Writing of his visit in Louisiana, Mr. Widmann says: "I found it first March 2, a flock of fifty, near Mandeville, La., north of Lake Pontchartrain, and again March 5, at Madisonville, La., also a good sized flock in company with Goldfinches. Then again March 13, in the woods on the right bank of the Mississippi opposite New Orleans, a few, of which Mr. Kopman, a local ornithologist, took a specimen, the first he had ever seen. Prof. Beyer and Mr. Allison, the other ornithologists of New Orleans, confirm his statement, and consider it a rare find."

The species was fairly common at Oberlin, May 22.

AMERICAN CROW, *Corvus americanus.*—While out collecting Crow eggs on April 22, 1897, with Mr. F. L. Burns, I found a nest containing two young Crows several days old, and Mr. Burns took a set of six eggs from a nest lined with human hair. This is rather an early date for young. RUSSELL GRAY, *Philadelphia, Pa.*

Is it generally known that early in the season the Towhee has a lengthy, fragmentary, soliloquizing song? The general effect of it is like the song of Brown Thrasher when heard in the distance. The Towhee utters this song as he works about the brush-piles, his scratching not interfering with the song. In scratching for food he hops forward and then kicks back with both feet simultaneously, alighting at his starting point. Beetles and other articles of food are thoroughly masticated before being swallowed. J. C. GALLOWAY, *Montgomery, Ohio.*

WARBLING VIREO, *Vireo gilus.*—During the collecting season of 1896, having occasion to collect a few sets of eggs and nests of three birds, eight sets were taken as follows:

May 28, three sets of 4 eggs each. Incubated. Fresh.
" 29, four " " 4 " " 2 " 2 (slightly)
" 30, one " " 3 " " " "

June 8th I again visited this locality and found and examined seven nests of these birds that had built and completed second sets, and nests, on the same tree, or in the immediate vicinity. Not any were over twenty-five yards from the site of the first nest. Six contained four eggs each, and one, three; three sets appeared to be slightly incubated and four were fresh. Time between taking the first sets and the building of new nests and completion of second sets, is as follows: In three (first) eleven days; in three (second) ten days; in one (third) nine days. The latter being the nest taken May 30 and containing but three eggs might not have been completed, although the first set of this pair contained but three. These second nests appeared to be more hastily built and contained less material than the first nests, and were generally built nearer the ground than the first nests.

J. N. CLARK, *Meridian, Wis.*

THE WORK FOR 1897.

Members should bear in mind that there are three committees at work upon the warblers, each one desiring material from all sources for their final report: The "Migrations" are under the direction of Mr. J. E. Dickinson, 1122 S. Winnebago street, Rockford, Ill. "Nesting" is under the direction of Mr. H. C. Higgins, Cincinnatus, N. Y. "Food" and "Song" under the direction of Lynds Jones, Oberlin, Ohio. Besides these committees there are others. Mr. Frank L. Burns, Berwyn, Pa., asks for notes on the *Flicker;* Mr. Howard P. Mitchell, Mt. Sterling, Wis., for notes about *Nestling Down;* Mr. Stephen J. Adams, Cornish, Me., for notes relating to the habits of the *Swallows;* and Mr. W. L. Dawson, Oberlin, Ohio, outlines the proposed work on *Geographical Distribution* in another place in this BULLETIN. Let these committees have your hearty cooperation in all of their proposed investigations.

COMMITTEE ON GEOGRAPHICAL DISTRIBUTION OF BIRDS.

The study of geography, like charity, should begin at home. Hence what I shall have to say by way of suggestion in outlining methods and

work will refer only to that which can be done in the garden, the orchard, and by the hedge, or on the occasional "day off." It is because we believe that there is no more fascinating or profitable nature study than that concerning the geographical distribution of animal life that we ask ourselves if there is not a necessary and important work which we may begin where we are. Birds, on account of their almost universal distribution and widespread movements, as well as for the reason that all the species in one locality can be learned and kept readily in mind, afford an ideal field for the investigation of the problems of specific variations, inherited traits and the influence of and accomodation to climatal and geographical changes.

Without proposing at present any elaborate scheme of co-operation among the members of the W. O. C., I wish to recommend for preliminary work two simple tasks, which, if undertaken and faithfully carried out will lay good foundation for fuller work. The first is what I should call the taking of *daily horizons*. That is, when you are in the field make a note of all the species seen, however common, and preserve these for future comparison. It will be a surprise to some to find how many species of birds may be seen on a little early-morning-before-breakfast ramble. Simple recording, however mechanical it may seem at first, will stimulate the powers of observation to a wonderful degree. I may instance sample "bags," or horizons, taken here at Oberlin this past winter and spring. On the 13th of February last Mr. Lynds Jones and I took a trip to the lake shore and found 18 species of birds—not of course counting such vermin as English Sparrows. By the first of April the number of resident and migrating species to be found on a day's tramp had reached 37. While by the 29th of the same month, between the hours of 4:30 and 6:30 A. M., we saw 55 species of birds in town and in a neighboring wood. The best horizon of the season was taken on the forenoon of May 10th, when we found 76 species of birds present, including 18 kinds of warblers.

In connection with this Mr. Jones has an excellent scheme in a pass-book of quadrille-ruled paper. In this he enters every bird as it appears each year and allows a space, or square, for each day throughout the remainder of the season. When returning from a morning ramble he enters the number seen after each species, however common. In this way, by glancing over the pages, the exact dates of arrival and departure of any given bird may be easily noted.

Another plan and one requiring a little more consecutive attention is the taking of the *bird census* for a given locality. Such expressions as,

"common", "tolerably common", "abundant", "rare", etc , which we constantly meet with, do not tell the story. To get any adequate conception of the various relations of different genera and species throughout the country we need to make an approximate estimate of their numerical relations based on reliable data from different localities. Lay out a given section, however small, a pasture, a swamp-lot, or an orchard and count the exact number of each species you find present at a certain time. It is evident that by laying meadow to pasture and swamp to copse one may obtain a fairly accurate estimate of the bird population.

These two plans are submitted to the Chapter as forming the present work of the Committee on geographical distribution. The first must necessarily be continued for a term of years to be of more than individual value, but it is believed that it will, as a skeleton or framework of field observations, provoke a discriminating interest in the birds afield, which alone would be worth the trouble, and that if carried on it will afford useful material for correlation papers.

The second plan is evidently available for immediate service although publications cannot be undertaken until some considerable number of censuses have come in. All those who are willing to undertake this work are asked to submit their results to the chairman of the Committee for correlation and ultimate publication. W. L. Dawson, *Oberlin, O.*

EDITORIAL.

When does the Whippoorwill arrive at your station? When does the Purple Martin arrive at your station? This information is earnestly desired from every member so that a record of the movements can be made, and the controversy over earliest arrivals settled. Write your earliest records for these two species on a postal card and mail to the editor at once. The records of previous years would also be welcome.

We gladly note the growing success of the new ornithological art periodical, "*Birds*," published by the Nature Study Publishing Company of Chicago. It has come to fill a want long felt and gives promise of being able both to interest the uninitiated and to delight the professed votaries of the birds. Each month a varied assortment of mounted bird groups from all climes is reproduced in colors, and every plate is accompanied by a simple descriptive text, together with a short talk to the children purporting to be by the bird itself.

Numbers 1–4 of the monthly have appeared, and while all the plates

are not of uniform excellence as to pose and fidelity of coloring, there is a determination to improve manifest and some of the color photographs must be pronounced superb. There is not a weak plate in the March number and the "Barn Swallow" alone is worth the price of the magazine.

Of course the periodical aims primarily to reach juvenile readers, but none of us have outgrown an appreciation of the faithful delineation of bird life. Hence a word of suggestion may not be deemed amiss. First by all means let the proper *scientific name* be attached to every bird-plate. A modestly printed Latin name (in parenthesis if you like) will not scare the children and will greatly add to the value of a picture in the eyes of those who care to know a bird accurately in its relationships. And along this same line too, while a bird is being painted so truly, why not tell us briefly what sex is before us ? what seasonal phase of plumage is depicted ? and what locality that precise subject hails from ? All these points would add to the educational value of "*Birds*" and need not interfere in the least with its commendable work for the children.—W. L. D.

An invitation to attend the regular meeting of the Southern Division of the Cooper Ornithological Club, to be held in honor of the late Major Charles E. Bendire, has been received. The meeting, was held at the home of Otto J. Zahn, 427 S. Hope St., Los Angeles, March 27, 1897.

NEW MEMBERS ELECTED.

The April election of new members resulted in the election of the following persons :

For Active Membership : Frank M. Woodruff, Assistant Curator Chicago Academy of Sciences ; Henry K. Coales, 136 Washington street, Chicago, Ill. ; W. S. Colvin, Ossawatomie, Kansas.

For Honorary Membership : Otto Widmann, Old Orchard, Missouri.

For Associate Membership: John W. Daniel, Jr., Lynchburg, Va.

PUBLICATIONS RECEIVED.

The Birds of Colorado, by W. W. Cooke, Bulletin No. 37, Technical Series No. 2, State Agricultural College, Agricultural Experiment Station. A catalogue of 363 species of birds which have been found within the state, 230 of which are summer residents, and 51 are stragglers. The introductory chapter gives us a glimpse of Colorado topography and cli-

mate while defining the scope of the work in hand and suggesting profitable work in future. Following the introductory note, nine pages are devoted to a "Classification of Colorado Birds" under twelve heads according to their occurrence in the state, as "Residents", "Winter Visitants", regular and irregular, "Summer residents" subdivided under five heads according to their breeding range. "Migrants" regular and irregular from different directions, and "Stragglers." "Dates of Migration" for three localities are compared with dates of arrival of the same species at St. Louis, Mo. An exhaustive bibliography is followed by "The History of Colorado Ornithology," beginning in 1807. In the body of the work the 363 species are treated in the order of the A. O. U. check list, each one being fully annotated. The vertical breeding range of breeding birds is given, adding greatly to the interest in such species. This work easily takes first rank among the published state catalogues of the west. A map of the state illustrating the topography would add greatly to the value of the work.

The Story of the Farallones, by C. Barlow and H. R. Taylor. This neat little booklet contains twenty-eight photo-engravings of more than usual excellence, illustrating the physical features and bird life of that paradise of the birds; which, with the eleven pages of well written text descriptive of the island life and features, makes one feel well acquainted with the place. The fact that the islands have lately been closed to visitors makes it the more necessary to possess one of these booklets, which can be purchased of H. R. Taylor, Alameda, Calif., at the very low price of fifty cents. No one can afford to be without a copy.

Catalogue of a Collection of Birds Made by Doctor W. L. Abbott in Madagascar, with Description of Three New Species, by Charles W. Richmond. From the Proceedings of the United States National Museum, Vol. XIX, pages 677-694. An annotated catalogue of 83 species representing 39 families of birds.

A Preliminary List of the Birds of Okanogan County, Washington, by William L. Dawson. Reprinted from the *Auk*. An annotated list of 143 species positively known to occur in the county, and a hypothetical list of ten additional species. This list, the author tells us, was made during a residence of fourteen months at Chelan, on Lake Chelan, June, 1895 to August, 1896, during the intervals of labor as a Home Missionary. The annotations are well selected, intended to acquaint the reader with the habits and nesting of the species whenever possible, and in many cases with the characteristic note and song. Coming from a region so

little known, it is doubly welcome as a contribution to the subject of distribution.

"*Some Common Birds in their Relation to Agriculture*," by F. E. L. Beal, B. S., Assistant Orinthologist, Biological Survey, May, 1897. Farmer's Bulletin No. 54, of the U. S. Department of Agriculture. In this Bulletin there are treated in their relation to agriculture, the Cuckoos, the Woodpeckers, Kingbird, Phoebe, Bluejay, Crow, Bobolink, Red-winged Blackbird, Meadowlark, Baltimore Oriole, Purple Grackle, the commoner Sparrows, Rose-breasted Grosbeak, Swallows, Cedarbird, Catbird, Brown Thrasher, House Wren and Bluebird. A statement of the sorts of food eaten is based upon stomach contents of a sufficient number of specimens to make the statement reliable. The object of the bulletin is to show that while the species under consideration may seem injurious sometimes, or may even be injurious to some extent, they are on the whole, beneficial to the agriculturalist on account of the hordes of noxious insects destroyed. The effort of our government to determine the exact relation of the birds to agriculture is a laudable one, and the conclusions reached may well be heeded.

The Museum, Vol. III, Nos. 6 and 7, April and May, 1897. W. F. Webb, Albion, N. Y.

The Nidologist, Vol. IV, No. 5, April, 1897. H. R. Taylor, Alameda, Calif.

The Osprey, Vol. I, No. 8, April, 1897. W. A. Johnson, Galesburg, Ill.

The Oologist, Vol. XIV, Nos. 4 and 5, April and May, 1897. F. H. Lattin, Albion, N. Y.

Bulletin Oologist's Association, No. 1, March 15, 1897.

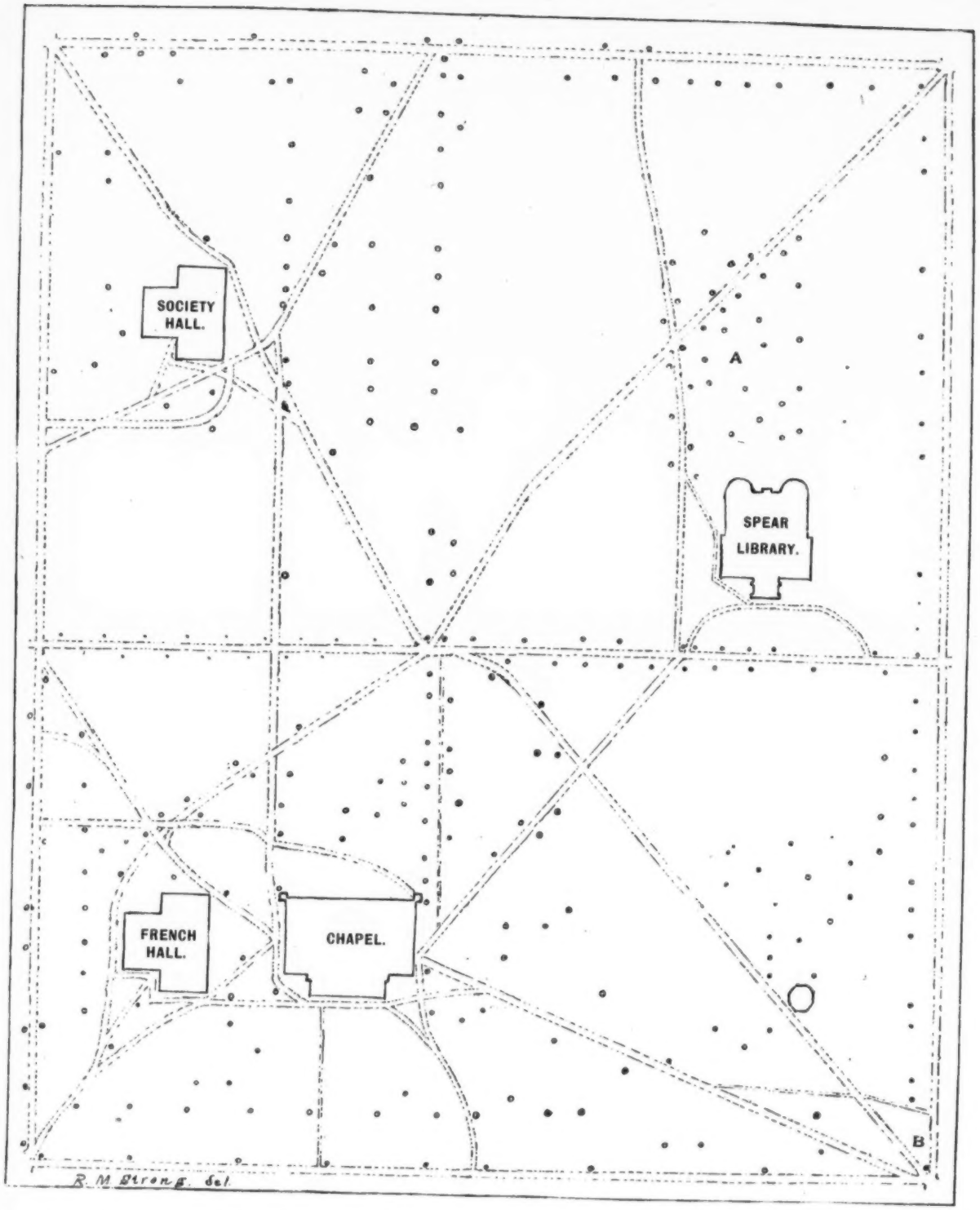
The Fern Bulletin, Vol. V, No. 2, April, 1897. W. N. Clute, Binghamton, N. Y.

The Observer, Vol. VIII, No. 5, May, 1897. E. F. Bigelow, Portland, Conn.

The Microscopic Bulletin and Science News, Vol. XIV, No. 2, April, 1897. Queen & Co., Philadelphia, Pa.

WANTED! Clean, unbound back numbers of the *Auk*, and *Ornithologist and Oologist*. Will pay good cash prices for the right numbers.—HENRY R. BUCK, *Wethersfield, Conn.*

OBERLIN COLLEGE CAMPUS. 1896.



A—Grackle Roost. B—Historic Elm. o—Large Trees. •—Small Trees. ⊙—Conifers.
:::::—Walks.

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July 30 – 1897.

INTRODUCTION.

This account of the Oberlin Grackle Roost is based upon three years' more or less continuous study from the first appearance of the birds in the trees to the final departure of the last one. Thus far the present year (1897) has added little to what has already been learned, partly due to a pressure of other duties during the early weeks of the gathering of the birds, partly because it is yet too early in the summer for any marked features in the habits to be looked for.

The facts given are taken from notes written on the spot day after day, and while I cannot hope that there are no errors of observation or interpretation, I shall be satisfied if this account of a single gathering stimulates others to a study of any similar gatherings within their reach. It would be interesting and valuable to know in how many villages and cities of each state such roosts occur, with the numbers inhabiting each roost. There must also be many in swamps and woods far removed from villages, in some parts of the country. Mention of such would show in what regions the grackles still cling to old habits.

It gives me pleasure to acknowledge the kindness of Mr. R. M. Strong, who prepared the map of the College Campus, and whose friendly advice and encouragement have been greatly appreciated. Thanks are also due the College Y. M. C. A., by whose kindness the map of Oberlin village has been secured. Any acknowledgment of thanks would be incomplete without mention of the kindly interest and valuable suggestions of Professor A. A. Wright, and the enthusiasm of the students of my ornithology classes, which have been a constant inspiration and incentive to better and more faithful work.

LYNDS JONES.

OBERLIN, OHIO, July 30, 1897.

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THE OBERLIN SUMMER GRACKLE ROOST.

The forces of nature in action all about us are untiring in their recurrence, and yet how few of them ever reach even the surface of our consciousness. We enter some new field of study and investigation only to be amazed at our stupidity in not seeing those things which may have touched us every day of our lives before. Thus it is that nature study is so fascinating to most of us; every day is full of surprises. This is, perhaps, more true of the study of birds than of almost any other living things because we have the birds always with us in their varied beauty, the charm of their song and the intense activity of their lives. They seem to speak directly to us in a language which we can sometimes partly understand, and which we can always appreciate. The measure of our knowledge of the birds is often not the degree of our intimacy with any of the many species, or, indeed, all of them if that were possible; for if a species is well known and common we are too much inclined to pass it by with the thought that there is little more worth knowing about it, to study with more care some rare species from whose history we are pretty sure to discover the hint of some general truths never before suspected in the commonplace life of the more familiar species. Many "Life Histories" of the birds have been written, shedding much light upon the vexed questions of our favorite science; but I venture to say that the entire life history of even our most common birds has never been approached, certainly not in any one work. Thus it is possible for any of us, by careful, patient study, to add greatly, it may be, to our imperfect knowledge of the birds.

There is nothing new in the announcement that many birds which may or may not be gregarious at other times, congregate in large numbers to pass the night together in some favored spot. Alexander Wilson was acquainted with this fact, and no doubt others before him. It has been noticed and mentioned by later writers from time to time, but this interesting habit has not received the attention it deserves in literature until within recent years. We are indebted to Mr. O. Widmann for an account of the "Crow's Winter Roost at St. Louis, Mo.,"* to Mr. William Brewster for an accurate account of the "Summer Robin Roosts" near Cam-

*Crow's Winter Roost at St. Louis, Mo., *Ornithologist & Oologist*, February, 1888, p. 17.

bridge, Mass.,* to Mr. William T. Davis for an article on "Staten Island Crows and their Roosts,"† to Mr. O. Widmann again for a description of "A Winter Robin Roost in Missouri,"‡ and to Abby F. C. Bates for acquaintance with "A Swallow Roost at Waterville, Maine."§ In the scanty literature at my disposal I can find no other account of roosts, except by casual mention.

Conspicuous and well known as the Bronzed Grackle is to nearly every one, he has received almost no attention from students of birds, if we are to judge from printed accounts of his roosting habits during the summer season. I find mention made of such a habit in Vol. I, p. 333, of *Wilson's American Ornithology*, and casual mention in the writings of many subsequent authors, but nothing approaching a careful study of it. Some tell us that these gatherings are in the shade trees of villages, towns or cities, others that the birds still cling to their primitive habit of passing the night in thick woods or swamps. There is, therefore, nothing unique in this gathering in the heart of Oberlin. In this part of the state the grackles seem to prefer such places to the country. In the hope of throwing a little more light upon the life history of a species already so well known, I may be permitted to discuss somewhat in detail this favorably situated roost.

The grackles have had a summer rendezvous somewhere in the village of Oberlin for no one knows how many years. There is a fairly accurate record of them as far back as early in the eighties, but earlier than that recollection is at fault. Their habit of roosting in the trees whose branches overhang a public or private walk has brought them into ill repute, and they have been driven from place to place in the village by irate property owners until forced into the campus, which is virtually the public square. Here they have enjoyed comparative peace, because it is everybody's and therefore nobody's business to drive them out. Independence Day, with its deafening din and showers of fiery hail, has been full of terrors for the grackles, but they have endured it all for the sake of the old habit.

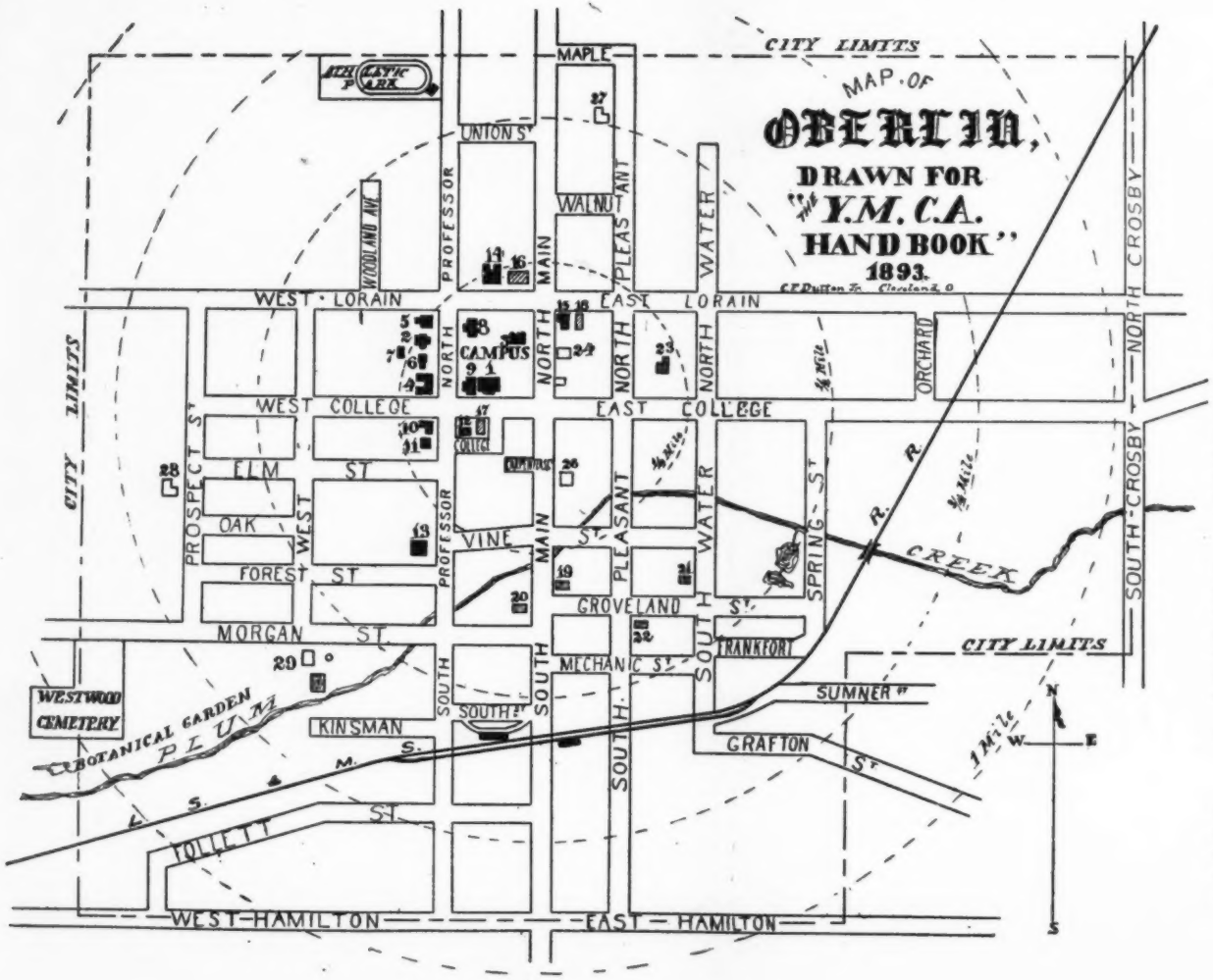
There is nothing about the situation of Oberlin that would seem to make it a more desirable place in which to spend the night, in the eyes of a grackle, than any one of the many remnants of woods in the immediate vicinity. The village lies in a plain region 250 feet above lake Erie, cut

*Summer Robin Roosts, *Auk*, Vol. VII, October, 1890, p. 360.

†Staten Island Crows and their Roosts, *Auk*, Vol. XI, July, 1894, p. 228.

‡A Winter Robin Roost in Missouri, etc., *Auk*, Vol. XII, January, 1895, p. 1.

§A Swallow Roost at Waterville, Maine, *Auk*, Vol. XII, January, 1895, p. 48.



COLLEGE BUILDINGS.

1—Chapel.
2—Peters Hall.
3—Spear Library.
4—Warner Hall.
5—Science Laboratory.
6—Cabinet Hall.
7—Men's Gymnasium.
8—Society Hall.
9—French Hall.
10—Talcott Hall.
11—Baldwin Cottage.
12—Sturges Hall.
13—Lord Cottage.
14—Council Hall.
15—Stewart Hall.

CHURCHES.

16—First Congregational.
17—Second Congregational.
18—Baptist.
19—Methodist.
20—Episcopal.
21—Rust Methodist.
22—Catholic.

23—Judson Cottage.

TOWN BUILDINGS.

24—Town Hall.
26—Union School.
27—Pleasant Street School.
28—Prospect Street School.
29—Water Works.

by the slight gorge of Plum creek, twelve miles south of lake Erie, three miles from Black river on the east, and seven miles from Vermillion river on the west. Both rivers flow in a northerly direction to the lake. The country is liberally dotted with remnants of the primitive forests which once covered the land, many of them dense enough to afford excellent protection for more than all the grackles in the county. The village is more than usually well supplied with shade and ornamental trees, and the campus will be seen to possess at least three distinct groves. These groves contain maples, elms, conifers and oaks in varying proportions. A glance at the map of the campus will make clear the position of these groves. All of the trees in the roost grove are maples; those in the grove north and east of Society Hall are mostly elms, while those north of the Chapel and French Hall are maples, elms and conifers, and a few trees of other varieties. The other trees of the campus are of no importance in the discussion of the roost, except those along the north boundary. These are of various kinds, mosly large, with wide spreading branches and dense foliage. The campus is nearly level, but with a slight depression beginning north of the west side of the chapel and running nearly south-east, ending a little west of the corner of the street.

Turning now to the map of Oberlin, the position of the campus in its relation to the rest of the village will be seen. The representations of the buildings are far too large in proportion and those of the streets are far too wide, but that does not matter. North of Council Hall (No. 14) is an orchard of old trees whose branches interlace, and south of the First Congregational Church (No. 16) a considerable number of maple trees form a secure hiding place, by their intertwining branches. Many of the larger village blocks are unoccupied in the center, and are pretty well filled with trees besides the trees lining the streets each side. In the lower left-hand corner of the map "Westwood Cemetery" will be seen. East and a little south, there still remains a small natural grove of tall trees—Ladies' Grove—through which Plum creek flows, and immediately east of that the large new water-works reservoir. On the south side of East College street, between Spring street and the railroad, there is an extensive lawn and orchard in which I am told that the grackles once roosted. Later, when driven from here, they were to be found between Water and Pleasant streets near Plum creek, and still later at the intersection of East College and Pleasant streets, from which place they sought their present quarters on the campus. While roosting in the eastern part of the village the birds seem to have returned at evening from the

south-west, passed over Ladies' Grove, followed the course of the creek downward, and so reached their roosting place.

The grackles first occupied the campus trees in June, 1893, when a small company was in the habit of spending the night there. The number was never large, probably less than 500 at any one time during the summer. The following summer there was a marked increase in the number occupying the trees, but still not a company large enough to attract the attention of the casual observer. Absence from town during the greater part of the summer of 1895 prevented any systematic study of the roost and its nightly occupants during that year. An effort to determine the number of individuals was made late in September, which resulted in an estimate of 3000. It is almost certain that the number at this time was smaller than a little earlier, because every day noted a decrease in the birds occupying the trees. It was learned that at least nine-tenths of all of the birds came from the east-south-east, apparently from the region of Black river, which lies about three miles distant in that direction. A few small companies came in at a considerable elevation, but the great majority skimmed along just above the tree tops. By the end of the second week in October all had dispersed.

Practically the entire summer of 1896 was devoted to the study of this roost and the habits of the birds occupying it. Spear Library proved an excellent point for observation, the highest part of its roof being almost on a level with the tree-tops, and its north end removed only a few rods from the southernmost row of trees of the roost. But the point of observation varied with the habits of the birds and the time of day, as will be seen later. Several unsuccessful attempts were made to determine the exact feeding grounds of the birds. Neither horse nor bicycle is in the same class as the grackle a-wing, and during the day they could not be found. From some high vantage point their approach at night could be watched, and their general direction in that way determined, but that was all.

This habit of collecting in such large companies to pass the night together is so interwoven with the other habits of the birds that the whole life history of the grackle must be known before any correct explanation can be hoped for. The gregarious instinct seems to pervade his whole being and finds expression in every phase of his life. He winters in communities, migrates in communities, nests in communities and even molts in communities, as we shall see presently. It does not seem incongruous, therefore, if he becomes partial to communities of men instead of clinging to the old habit of nesting and roosting in woods

and swamps removed from civilization. In many parts of the country he certainly has gone from his former haunts to the habitations of man, and has been enough pleased with the change to continue to do so each successive year.

Let us follow the life history of the grackle from the day of his arrival at Oberlin in 1896, to the day of his departure.

The persistent cold weather of early spring was decidedly unfavorable to the early migratory species of birds, but the van-guard of the grackles reached Oberlin on March 9, very little later than usual. The continued cold weather during the next two weeks held the less hardy individuals in the south. An increase in the number present was noticed on March 24, and on the 28th the grackles were conspicuous among the many other migrating species. A small company paid a short visit to the roost late in the afternoon, showing clearly by their actions that they were well acquainted with the place. From this time on, at irregular intervals, flocks of varying size visited the roost, though none passed the night in it: they seemed to prefer the trees in which they finally built their nests. During the day few were seen in the village, but at evening their voices made them everywhere evident.

On April 12 mating began, in many cases apparently ending at once, since the first completed nest was found on the 20th. It was not possible to determine whether both birds were engaged in building the nest. On May 14 young birds about four days old were found. This would make the period of incubation about fifteen days.

May 16 seemed to be the first day on which sufficient numbers to attract attention began to resort to the roost at night. Previously the old males had passed the night near the nest, but now they were not to be found near it late in the evening. An actual count made on the 21st gave the record of 100 birds leaving in the morning. Another count was made on the 23d, when 352 birds left the trees, all old males in full plumage except one young with tail feathers about half grown. Attempts were made to count the arrivals in the evening, but the constant shifting about of the earlier arrivals among all of the trees on the campus, made any degree of accuracy impossible. None of the birds seemed to go far away from the trees in the morning, and all came from near the ground and from the immediate region in the evening. This, as well as their actions, led me to strongly suspect that nearly if not quite all of them had nests in or near the village. The young bird was fed several times after settling in the trees. His begging call was heard after all other noises had ceased.

This small company was recruited from day to day, first by such old males as had not already been able to shift the care of the nest or young upon the mate, a little later by the more forward young, and about July 10, by the more backward young and the old females. This order of recruiting the roosting host was made very evident by the desertion of the nest at night, a point which was carefully noted. The sudden complete desertion of the nest by the old females and young and the simultaneous decided augumentation in the numbers found at the roost was very noticeable about July 10. At this time the trees became so crowded full of birds that other places were sought and occupied by the overflow. On the 14th a few small companies began to pass the night in the shade trees on North Professor street, and on the 20th more were seen to leave and settle in the trees on North Pleasant street south of the school house. A few were contented with the low orchard trees north of Council Hall. On the evening of July 17 the birds came in at the rate of 52 a minute for an hour, the flight terminating with the arrival of an uncountable company just as the sun sank below the horizon. There must have been fully 5000 birds in the trees of the roost on this date, and 500 more in the neighboring trees. An actual count was impossible but a fairly accurate estimate was arrived at from noting the appearance of the trees immediately before the arrival of the last great flight, counting the birds in sight, and their appearance after the flight; and also noting the time occupied by the last flight in passing a given point, the number of birds abreast being known. These two methods gave practically the same result.

During the early part of July the birds did not wander far from the roost at any time, but by the first of August lack of sufficient food in the near vicinity forced them to go farther, when none were seen in town during the day. Naturally enough, with the necessity for a wider range for food came a change in the order of arrival and departure. The birds no longer came straggling in from near the ground and from all directions, but arrived in greater or less companies from above the tree-tops after considerable flights across the country. But a far better understanding of this change will be obtained if a detailed account of the arrival and departure for two widely separated times is given. The order of departure in the morning and arrival in the evening of May 23 will well illustrate the earlier manner.

Arrived at the roost at 3:00 A. M. Temperature 50°; air chilly. Partly cloudy. Station: beneath a tree north of the roost.

3:00. No evidence of bird life in the trees.

3:15. A few birds began to sing.

3:30. First one left the trees.

3:31. Ten have left, and small companies of from three to twenty left every few seconds until 4:05, when the last one departed, accompanied by a young one. 352 were counted leaving. At 3:40, robins, and at 3:45, cowbirds were seen to leave the trees. The last company of about a dozen cowbirds was driven out by four old grackles at 4:00. All the birds seemed to be singing up to the last ten minutes before the trees were entirely deserted. The cowbirds, however, were not heard at all until 3:45, when but few grackles remained. Robins were heard shortly after the first grackle began to sing, and were heard as long as any remained in the trees. None of the birds went far away at first, but seemed to have business close at hand. All but the youngone were old birds.

In the evening observations were taken from the roof of Spear Library. The sky was almost clear, the air warm and still.

6:45. Three grackles arrived from the south, but soon flew away again. They were calling.

6:55. A straggling flight of from one to ten individuals every few seconds began, and ended at 7:15. The birds came in from the south and east in about equal numbers. There was no large flight at any time, nor any concerted action except in the small companies. Nine-tenths came from low down among the trees, the rest at about 100 feet elevation above the tree-tops. These had apparently made a much longer flight than the others and came in even smaller companies or singly. A very small proportion arrived singing, or sang immediately after settling in the tree-tops, but there was little noise at any time. The flight of all was rapid and straightforward, and the tail was not carried in the keel-shape, except by those coming in from the neighboring trees. The last small company arrived at 7:20, as darkness settled down. There were no females and only the one young of the morning in the company. As careful an estimate as could be made placed the number occupying the trees at 500. The earlier arrivals remained in the tree-tops for some time before sinking into the foliage, but the later ones usually disappeared at once. Until some minutes after the arrival of the last company there were always a few birds to be seen in the tree tops. Before it became too dark to see clearly every bird was out of sight. Settling into the foliage and shifting for position occasioned considerable scolding, until darkness brought quiet.

Cowbirds began to put in an appearance even earlier than the grackles,

but none ventured into the trees at first. They came from the south-east in companies of from five to ten individuals, avoided the trees of the roost and settled in the grove on the west side of the campus. At 7:00 more than fifty cowbirds from these trees came dashing into the roost and disappeared at once. A little later a smaller company dashed in. From this time on the cowbirds flew directly to the roost without molestation from the grackles; previously the grackles had resisted attempts to share the roost with them. None of the cowbirds were singing, and but few uttered the whistling note. There were about 100 cowbirds, but no robins.

The contrast between the actions of the birds early in the season and relatively late will be made evident by the record of the departure and arrival of the grackle host on September 7. The sky was clear, the air chilly but still, temperature 50° in the morning. Station: 300 feet west of the roost, commanding a view of the north, west and south-west sides.

Arrived at the roost at 3:30 A. M. No birds stirring.

4:00. The first sleepy note was heard.

4:15. Several awakened and sang.

4:30. Many were singing and shifting about in the trees.

4:40. Very noisy, and much shifting about. Cowbirds began to leave. By 4:50, 300 counted leaving.

4:50. Several hundred grackles came to the roost from the neighboring trees where they had passed the night.

4:55. Grackles coming from all directions and settling in the roost with much noise and scolding; the most sink out of sight.

5:04. Several come from the north-west, the most stop in the roost, but as the rear guard passes on southward those in the roost rise and follow in one continuous stream which flows up out of the trees where few birds were seen before, over the still slumbering village and away into the south-west, leaving an oppressive stillness where a moment ago the air was filled with their voices. The birds did not rise from the trees in one mass as we have so often seen them do, but in consecutive order from the south to the north edge of the group of trees, as though by previous arrangement, giving the impression that the foliage was melting away into that black stream. The appearance of the departing birds created a strong impulse to be up and follow them. I did follow them well out into the country, but soon found myself hopelessly beaten in the race. As long as it could be seen, the flock remained intact, and did not stop to rest. The flight was near the ground, and followed the contour of the country closely, rising only to clear farm buildings and woods,

then dipping again to the former level. The lowermost birds were scarcely more than twenty feet from the ground. While the birds were flying there was no singing and not much noise of any kind except that made by the wings. It was evident that the birds had some definite feeding ground selected, toward which they were hurrying in a straight line.

During the day no grackles could be found within four miles of Oberlin in any direction. From the top of Spear Library I watched them come in at evening.

5:14. Five arrived from the north-east, flying high.

5:17. Three more heard in the trees of the roost.

5:20. Three arrived from the north-east,

5:24. One from the south settled in the roost.

5:26. One from the south settled in the roost.

5:27. Seven from the south settled in the roost.

5:32. Thirteen from the south settled in the roost.

5:34 to 5:45. About 5000 arrived from the south, settled first in the trees south of the building, then passed to the roost or to the trees west. They came in companies of from 200 to 800, forming an almost continuous flight. There was very little singing and no continuous chatter while flying.

5:50. 200 from the north and 150 from the south. During the next five minutes about 100 arrived, the most from the south, but a few from the east.

5:58. 300 from the east-south-east. These and those of the previous flight settled in the trees at once.

There was much shifting about and flying to and from the roost until 6:00. One attempt to settle in the roost at 5:55 did not succeed. Probably less than half of all the birds which finally passed the night in the roost were there at 6:00; the rest were scattered in the neighboring trees, or restlessly flying about overhead. There was no singing, and little scolding or sounding of the alarm note.

6:02. Many returned to the roost from the north-east.

6:03. Grand return from all directions.

6:04. 150 arrived from the east.

6:05. The birds well settled down in the foliage.

6:07. Ten arrived from the south.

6:10. 100 left the roost and flew to the trees some distance east on North Pleasant street. Very few in sight in the trees.

6:15. Practically all out of sight in the foliage. A few minutes later

all noise had stopped, when it became too dark to see the birds more than five rods away.

About 350 cowbirds and a few robins entered the roost after the greatest flight of grackles. At 5:30 the cowbirds were gathered in the trees north of the campus awaiting an opportunity to steal into the northernmost trees of the roost. They were seen on the roof of Council Hall and the First Congregational Church some minutes before the first grackles put in an appearance. On succeeding days the cowbirds came first to the roof of Council Hall, where they remained for half an hour before perching in the trees south of the building preparatory to their plunge into the grackle roost.

The first large flock of grackles was sighted a little west of south coming over a considerable woods a mile and a half away. Their habit of flying so low made it impossible to see them farther away because they were hidden by the woods. From here they came in almost a direct line to the south end of Professor street, then turned directly up that street to the intersection of Elm street, then passed east of the Second Congregational Church and the Chapel to the campus. Many of the birds stopped in the trees north of the Chapel and in those south of Spear Library, while more flew directly to the roost or to the trees west of it. During the summer the direction of the flight varied somewhat, although it was southerly at all times. The birds invariably turned eastward to pass east of the church and Chapel building at night, and never neglected to pass east of them in the morning, even though their final direction was decidedly westerly. It is difficult to resist the conclusion that the tall steeple of the Second Church served the grackles as a landmark on their evening return, but why they should always pass on the east side of it is not clear. It may be that the large buildings on the west side of Professor street caused the eastward movement. During the previous years the birds had not followed this route, nor had they during the early part of 1896, so it could not have been a fixed habit. It was only after the birds had begun to form into large flocks that they followed any definite line of flight at all.

As we have seen, during May, June and the early part of July the birds had not gathered into any considerable flocks, either at their morning departure or evening arrival; but the gregarious instinct asserted itself more and more as the season advanced and the necessity for a wider range of feeding ground increased. Early in the season the birds were not yet free from the care of the young, and so were naturally busied in different places by different things. The numerous small flocks

gradually joined together until there was but the one huge flock with few stragglers.

There were no wet days during the summer, but several thunder storms swept over the region early in the evening at the gathering time of the grackles. The actions of the grackles at such times were different enough from what we have already seen to warrant particular mention.

On September 5, conditions were favorable for the formation of local thunder storms. Early in the afternoon a storm began to form in the west, which moved eastward as it increased in magnitude. The sun was not obscured until about four o'clock, but the mutterings of thunder gave promise of a considerable storm. At 5:00, the storm cloud had spread well over the heavens, and at 5:04, a light sprinkle began, which gradually increased to a brisk rain. At 5:10, 500 grackles came swiftly in from the south, flying low and settling into the foliage at once. 5:15, steady rain with a light south-west breeze. A flock of about 2000 grackles arrived from the south at several hundred feet elevation; they went at once to the roost and disappeared in the foliage. 5:16, harder rain with more wind. A flock of about 3500 grackles appeared high up over the roost. They dropped down with half closed wings and at once disappeared. 5:20, the storm burst with sheets of rain and a westerly gale which tore the leaves from the trees and must have drenched the foliage with the first blast of the storm, which had spent itself in five minutes. During this time there was no sign of the grackles. At intervals of five minutes after the passage of the storm heavy showers followed until 5:45. Between showers the birds shifted about some, but did not show themselves. Theirs must have been a wet berth on that night. All arrived noiseless, and uttered scarcely a sound afterwards, even when shifting about.

The falling rain made it impossible to see the birds until they were nearly ready to descend into the trees, but the direction of their flight seemed to be the same as on other days. The last birds arrived at 5:16, four minutes before the storm burst in earnest, and forty-five minutes earlier than the last arrivals on September 7. Normally the return flight would hardly have begun until after the time that the storm had passed over. The weather after the storm was more suitable for flight than when the birds came in, and there was ample time for them to have reached the roost before dark had they waited for the storm to pass, but they could not risk being kept away from their accustomed sleeping place. Whenever a storm threatened during the afternoon, unless it passed over before four o'clock, the grackles left their feeding grounds in time to reach the roost before the storm burst upon it.

Cloudy days had the effect of retarding the morning departure and hastening the evening arrival. The difference between the time of departure and arrival on cloudy and clear days was coincident with the difference in the amount of daylight of two such days. My daily notes of the time of departure and arrival indicate a close correspondence with the varying length of the days from the time the birds were first seen until the roost was deserted, allowance being made, of course, for the effect of cloudy days and thunder storms.

There was no diminution in the number occupying the roost up to September 21, but not one bird appeared at the old stand on the two succeeding days. On the 24th less than a hundred occupied the trees during the night, and none visited it afterwards. This sudden failure to report promptly was undoubtedly due to the persistent persecution of would-be hunters of tender years, who made it a business to shoot into the flock as it passed over the outskirts of the village. While watching the incoming flock on September 10, a fusillade of shots caused the approaching flock to rise suddenly several hundred feet, turn abruptly back and divide, one part making a wide detour to the west and coming in from that direction; the other going back fully a mile and rising to a thousand feet elevation before venturing back again. This altitude was maintained until the flock was nearly above the roost, when the birds came dropping down like leaves. For about ten days following this serious disturbance the birds came in from a different direction—more southwesterly—avoiding the dangerous region. On September 21 they again came in from the south over the old route for the last time.

It was feared (hoped by some) that this experience would cause the grackles to abandon the old roost permanently, but on June 3, 1897, the trees were occupied for the first time by about fifty birds. The number has gradually increased since, with fair promise of as large a gathering as usual before the close of the season. At the present writing they have not begun to flock, so the direction of their feeding grounds cannot be determined.* The tendency heretofore to a southern direction may

*Since the above was written the grackles have formed into considerable flocks, and the direction of their feeding grounds has been determined, which is a little east of north. Their line of flight from the country passes a little east of the east end of Maple street to a large elm tree, where the majority of the birds rest for a few minutes before flying directly to the roost. It is difficult to see them immediately before they reach the roost, because they descend almost to the ground at the intersection of Lorain and North Main streets, then fly upward to the tree tops. It would be interesting to know what effect, if any, this change in the direction of the Oberlin birds has upon occupants of the other roosts in the county. That would require the remainder of the roosting season to determine.

be at least suggested by mention of three other roosts in the county.

The Vermillion roost, which is fourteen miles north-westward, consisted of about 3000 birds, nearly all of which came from the east or south-east in 1896. It is situated on the shore of lake Erie, thus making a northerly feeding ground impossible. Birds belonging to this roost were traced as far east as directly north of Oberlin, and five miles inland.

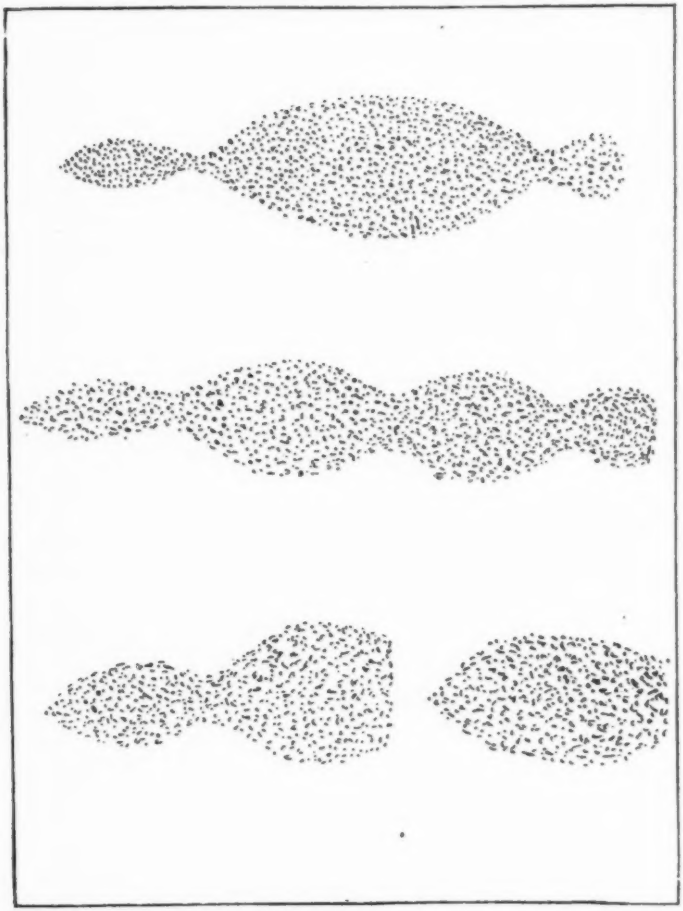
The Elyria roost, nine miles north-eastward, is apparently a larger one than the Oberlin roost, the birds of which feed in a south-easterly direction. A small proportion range northward and westward.

The Wellington roost, eight miles directly south, is said to be fully as large as the one on the Oberlin campus. I am told that the most of the birds inhabiting this one feed southward. For information relating to this and the Elyria roost I am largely indebted to residents of the two villages.

The reason why the birds of the Oberlin roost foraged in a south-westerly direction is thus made clear. The foraging grounds in other directions were occupied by the inhabitants of the other roosts. Several times it was noticed that when a strong wind blew from the east or north more birds than usual came from that direction ; and vise versa, when the wind blew strong form the south or west, almost no birds came from the opposite direction. This suggests that when the wind is favorable for them to do so, such individuals of the other roosts as wander away in the direction of this one, come to it rather than breast the strong wind to return to their own. And it is undoubtedly true that an unfavorable wind caused some birds belonging to this roost to seek the shelter of one of the others. Thus there would be a slight variation from day to day in the number at each of the roosts. Strong north winds were of rare occurrence, but when they did blow there was no apparent effect upon the incoming host from the south. It was too large and too well organized to be turned back by weather.

After the grackle host had formed into one huge flock, the form of that flock, as it passed over the fields and woods on its return to the roost or to its feeding grounds, was an interesting study. It could not be seen to advantage from Spear Library or near the roost, because the birds were headed that way ; but at the proper time of day almost any station in the fields south of Oberlin was sure to give one an excellent side view of the passing flock. The accompanying representation of the varied appearance of the flock on different days as well as at different stages of the flight on the same day, will give a fairly accurate idea of the average forms assumed. At the beginning of the return or departing flight a form similar to the upper figure was assumed, and the end of it, either at the feeding

grounds or at the roost, as the case might be, was more like the middle figure, because the flock had the habit of resting on the installment plan



FORMS ASSUMED BY THE GRACKLE FLOCKS, SEPTEMBER, 1896.

when passing to and from the roost, and so would become more and more drawn out and broken up as it proceeded. The van-guard would stop in some tree-top and rest until the others had passed over, when it

rose and formed the rear-guard. In this way the whole flock secured a short breathing time, part by part. Occasionally the flock became more broken up and extended from the van to the rear than represented in either of the figures. Rarely two flocks were formed during the flight.

We have seen that the advancing season brought certain changes in the habits of the birds resorting to the roost at night. These changes had several causes, chief among which was the food supply. All young birds subsisted upon insects for some days after occupying the roost for the first time. As they grew older the diet of both young and old was changed to blackberries, upon which the birds seemed to subsist while they were to be found in sufficient abundance. A green corn diet followed the blackberry diet, and corn formed the staple of grackle food as long as the birds inhabited the trees. Grasshoppers were everywhere abundant during the entire summer, inviting the grackles to a hearty and easily obtained meal where ever they might go; but I was unable to find any grasshopper or other insect remains in the droppings after the birds began eating blackberries. The damage inflicted upon the green corn crop must have been considerable, much of which, I suspect, was laid at the door of the crow, since flocks of two or three hundred crows were seen every day in the south-western part of the county. No doubt the crows ate their full share of green corn, but the grackles were many times more numerous and literally covered some corn fields. Twice I surprised them at a hasty evening lunch while they were resting on their way to the roost. None of the corn fields in the vicinity of Oberlin were molested during the latter part of July, and all of August and September. They showed their cunning by passing the night miles from the scene of their daylight depredations. I assume that the flock does not disperse during the day but forages as a flock, because the farmers and others who ought to know tell me of huge flocks of "blackbirds" seen at all times of the day, and because such flocks were every day occurrences during the summer at my old home in central Iowa, where the conditions are the same as here in Ohio. Earlier in the season, while they were foraging for the young, they were found singly or in small troops.

Another cause for the change in habits as the season advanced, one whose influence was very marked, was the summer molt. I say "summer molt" because the first feathers were shed on June 14, and the last feathers were fully renewed early in October. Feathers were collected every day during the summer in order to determine, if possible, the exact order in which the flight feathers were renewed, and also to determine the length of time occupied in molting. The birds were also carefully watched from day to day to further determine the progress of the molt.

A more exact method would have been to secure birds and study the plumage, but this would have thwarted study of the roosting habits by driving the birds away. It was the roosting habits and not the molt that I wished to study at that time; the other could wait. The first feathers found were the innermost primary and outermost greater wing-covert, both at the same time. The contour feathers could not be definitely located, and so were passed by. The primaries were molted in regular order from the innermost outward and the greater coverts from the outermost inward, followed by the secondaries from the outermost inward, except that many secondaries were found before any of the first and second primaries. This is practically the order determined by Mr. Witmer Stone for the genus *Quiscalus*.* But the subject of molting will be fully discussed in a subsequent BULLETIN, and so need not be further treated here. In 1894 and 1895 the desertion of the roost was coincident with the completion of the molt. It would probably have proved the same in 1896 if the birds had not been driven away before the usual time. The beginning of the molt so soon after occupying the roost and the desertion of the roost as soon as the molt is completed make an irresistable argument in favor of the supposition that the molt is directly responible for the formation of the roost. This is suggested by Mr. F. E. L. Beal in his pamphlet, *Some Common Birds in Their Relation to Agriculture*, page 25, in which he says: "After July it [the Bronzed Grackle] becomes very rare, or entirely disappears, owing to the fact that it collects in large flocks and retires to some quiet place, where food is abundant and where it can remain undisturbed during the molting season, but in the latter days of August and throughout September it usually reappears in immense numbers before moving south." It is true that the Oberlin grackles are not nearly so much in evidence while molting as while nesting, and are rather more abundant after dispersing from the summer roost, but their choice for roosting is anything but a quiet place. Instead of feeding near their roosting place, they wander miles away before ceasing their flight. A better designation for our grackles would be, "Locally rare or absent during the molting season," for surely they are numerous enough in many places at certain times of the day.

While there are many things in common between the grackle's and the robin's roosting habits, there are also some differences. Mr. Brewster's excellent account of the "Summer Robin Roosts" near Cambridge, Mass., already referred to, and my own notes on this Oberlin Summer Grackle Roost form the basis for this passing comparison.

**The Molting of Birds with Special Reference to the Plumage of the Smaller Land Birds of Eastern North America.* Witmer Stone.

Mr. Brewster found the robin roosting from the second week in June (June 11) until the end of the first week in October. Grackles were found at the Oberlin roost from May 16 until the end of the second week in October—a difference of nearly four weeks between the two species. Mr. Brewster describes the woods occupied by the robins as a point toward which the host converged from all directions, singly or in small companies. The grackles approached their roost from one direction only, and arrived in larger or smaller flocks. The feeding habits of the robin are therefore different from those of the grackle. Sometimes the robins were almost equalled in numbers by other species which shared the roost with them. But the grackles far outnumbered all the other species seeking the protection of their roost. The fact that many robins rear two broods in a season and that the grackles rarely if ever rear more than one in this locality, would of necessity make some difference in the roosting habits of the two species. So wide a range in the time of nesting among the different grackle individuals—April 20 to June 10—prolongs the molting season and occupancy of the roost beyond that of the robin, even with his two broods to rear. If the molted feathers, which were carefully gathered daily, can give accurate information, it is certain that the period of molting is at least a week shorter with the robin than with the grackle. The period of incubation is a day or two shorter, and the young leave the nest earlier, how much I have been unable to determine accurately. In a few isolated cases the young robins have remained in the nest fifteen days after hatching, and the young grackles twenty days. But there is considerable variation with both species. The first robin's nest is completed about a week before the first grackle's nest. Thus the robin is more expeditious in all respects. Mr. Brewster does not mention the molting of the robin while it occupies the roost, but from the number of first primaries found under the trees I am strongly inclined to think that all of the robins which occupied this roost in 1896 performed the entire molt during the roosting season.

After the roost was deserted small companies of grackles were seen in the country about Oberlin almost every day until their departure for the south—November 7, 1895, October 31, 1896. During the interval no evidence of a roost could be detected, and it seems probable that none of a general nature existed in this region. On more than one occasion a small flock was seen to enter a convenient small woods in the evening and passed the night there. Lines of flight would certainly have been discovered if any had existed. It is not impossible that the desertion of the roost on September 22, 1896, was the signal of departure southward for those birds, but it is improbable. The ragged condition of the majority

of the birds would seem unfavorable for a long journey, but, as we know, not impossible.

The study of this roost has shown that during courtship and nesting, each occupying about two weeks under normal conditions, none of the grackles flock together to pass the night, whatever they may have done previously; but as soon as incubation has well begun the old males seek the shelter of some convenient grove and pass the night there with others of their kind. As soon as the most forward young are able to fly they are escorted to the common roost by the old male, or if the whole brood should develop at the same time, by both parents; and where there is any marked difference in the development of the young of the same brood, the later ones, accompanied by the old female, bring up the rear. The young are fed for some days after they begin to roost with the old ones. All of the birds eat fruit while it is sufficiently abundant, then green and later ripening corn until the roost is deserted. The complete summer molt is performed while the roost is occupied. The fruit and green corn diet is coincident with the molting season, either from necessity or from choice. In general, the birds depart from the roost with the rising sun, and return to it at sunset. Singing and calling begin with the break of day, and continue until the birds depart for their feeding grounds. At night there is comparatively little singing, and all noise and shifting about cease as darkness falls. Early in the season the birds arrive and depart independent of each other, but with the advancing summer flocking increases, until finally all move as one individual.

During his sojourn in the north the grackle has a period distinctly beneficial to agriculture—the breeding season—and a period distinctly injurious to agriculture—the roosting season. The little injury done by robbing other birds' nests during the beneficial season is not worth taking into account. It is not probable that the berries eaten are any loss to anybody, since there are no complaints from fruit growers against this species. Hence, the only real damage done by the grackles is when they feed upon growing grain and upon that which has not been put out of their reach. This reduces the injurious season to a small fraction of the whole year, and is far too little damage done for the death sentence to be pronounced as a penalty.

Scarcely a beginning has been made in the study of this roosting habit. Before we can understand it we need to know more about the influence of migration, nesting, molting, food and food supply, disposition, enemies, and the role of man upon the life of the grackle. In short, we need to know far more about the grackle than we do now. His is an interesting character which will amply repay persistent study.